MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017/2018

TIS1101 – Database Fundamentals

(All sections / Groups)

12 MARCH 2018
9.00 am – 11.00 am
(2 hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 5 pages, including the cover page, with FOUR questions only.

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the answer booklet provided.

Answer ALL Questions

QUESTION 1

(a) Describe what unary, binary and ternary degree relationships are. Illustrates these relationships with an example for each. [3 marks]

(b) You are required to design the database for the Event Management System based on the following business rules:

- Each event is created by a staff, but a staff may create many events.
- Each event consists of at least one team. A team joins one and only one event at a time.
- Each team is formed by at least two participants. A participant joins one and only one team.
- Each team is advised by an advisor. An advisor may advise at most four teams per session.
- An event requires a venue. Each venue may be used for many events.

Based on the given scenario, draw an ER diagram (conceptual model) based on Crow's Foot model to represent the data requirements for the Event Management System. Your ER diagram must include the cardinalities, connectivities, relationships. You do not need to include the attributes in your ER diagram.

[7 marks]

QUESTION 2

The following is a relational schema of The Trio Medical Clinic. The primary key for all the relations are underlined and the foreign keys are in *italic*.

PATIENT (PatID, PatName, PatContact, PatBalance)

DOCTOR (DocID, DocName, DocSpecialty)

APPOINTMENT (AppID, AppSchedule, AppStatus, *PatID,DocID*)

VISIT (VisID, *PatID, DocID*, VisDate, VisTime)

VISIT_DETAIL(DtlID, VisID, DtlDiagnosis, DtlCharge)

Continued...

(a) Write a SQL command to list all the patient names, patient contact, appointment schedule under the status 'Confirm' on February 25, 2017 for doctor named 'Thomas Lee'.

[3 marks]

(b) Write a SQL command to count the number of doctors grouped by their specialty. The records should be sorted by the highest number of specialty on top.

[2 marks]

(c) Write a SQL command to create a view to display the following minimum and maximum charges in the year of 2016.

[3 marks]

Min_Charges	Max_Charges
21.50	4199.50

(d) Write a SQL command to list the patient name and contact with credit balance more than RM10 000.

[1 mark]

(e) Write a SQL command to list all patients without contact number. [1 mark]

Continued...

QUESTION 3

Answer questions (a) – (c) based on the following table:

MovieID	MovieName	MovieType	CinemaID	Location	TicketType	Price	UserID	UserName	Quantity
M1	Justice League	Action	C1	GSC IOI City Mall	Blockbuster	15	U1	Mike	2
M1	Justice League	Action	C2	GSC One Utama	Blockbuster	15	U2	Jane	1
M2	Welcome Home	Comedy	C1	GSC IOI City Mall	General	11	U3	Andy	3
M2	Welcome Home	Comedy	C2	GSC One Utama	General	11	U1	Mike	2
M3	Find me	Thriller	C2	GSC One Utama	Blockbuster	15	U4	Alan	4
M3	Find me	Thriller	C3	GSC Mid Valley	General	11	U5	George	2
M4	Loving you	Romance	C3	GSC Mid Valley	Blockbuster	15	U2	Jane	5

Note: The type of ticket (blockbuster or general) depends on the location of the cinema.

(a) Normalize the above table to 1NF. Draw the resulting dependency diagram, showing all dependencies. Underline the primary key(s).

[5 marks]

(b) Based on your solution in Question 3(a), normalize the relations to 2NF. Underline the primary key(s).

[3 marks]

(c) Based on your solution in Question 3(b), normalize the dependency diagrams to 3NF. Underline the primary key(s).

[2 marks]

Continued...

QUESTION 4

(a) If an implementation fails to meet some of the system's evaluation criteria during the *testing and evaluation* phase of DBLC, what are the FOUR options that a database designer can consider when enhancing the system?

[2 marks]

(b) Explain briefly the FOUR characteristics of the data held in a data warehouse.

[4 marks]

(c) List any FOUR disadvantages of cloud computing.

[2 marks]

(d) What is the main difference between scope and boundaries in DataBase Life Cycle (DBLC)?

[2 marks]

End of Page.